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ABSTRACT

Three network studies in education are reviewed in order to assess the current "state of the art." New directions for developing social network analysis (SNA) in education, based upon experiences from a study of school-community relations in Pontiac, Michigan, are suggested. One concern for the future of SNA stems from the elevation of distrust among participants in a turbulent environment such as Pontiac's. As a result, the kinds of reflective questions that are posed by network researchers are often greeted with suspicion and apathy making data difficult to verify. Another concern is that the attention focused on structure may obscure the interest in process. A third concern is for the explanatory usefulness of SNA. From an ecological perspective, education should be incorporated at the local level within a more general social service rubric that includes youth groups, churches, recreational agencies, child health agencies, and family organizations. The major tasks confronting network researchers are: (1) developing more adequate data collection techniques that can be validated; (2) incorporating more dynamic analyses of network processes; and (3) linking network research studies to theoretical development in many disciplines. (RL)

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REAPPRAISAL OF SOCIAL NETWORK RESEARCH IN EDUCATIONAL CONTEXTS*

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During the past seven years, educators have become more familiar with the concept of social networks. Several important studies within the educational research literature (Sarason and Lorentz, 1979; Litwak and Meyer, 1974; and Gittell, 1979) have made important contributions to the field. The term has also become popular as a strategy for promoting educational change. In the more general interdisciplinary research area of systems, the sub-topic of social network analysis or structural analysis research is presently characterized by sophisticated quantitative methodological analyses and serious debates designed to clarify terms and theoretical concepts. Some scholars now refer to systematic social network analysis as an "emergent paradigm" (Leinhardt, 1979). Whether or not one is willing to agree with that assessment, it is clear that social network analysis is an important area of contemporary scholarship.[1]

This paper will review three network studies in education to assess the current "state of the art." After this, I will try to suggest new directions for developing social network analysis in education. My examples

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will be based upon data and experiences collected from my own fieldwork in Pontiac, Michigan, where I have been working on a study of school-community relations for several years.

Network Research: A Brief Overview

Social networks are conceptual representations of relationships within a field. They are "maps" of the ways in which people associate with one another. As structural representations, social networks capture the complexity of human association more effectively than more bounded and fixed entities (e.g., groups). Since an individual in a network may be linked to others in a variety of ways, a personal network will reflect different types of relationships in many settings. Networks provide realistic pictures of the ways in which social relationships exist: they are complex, multi-stranded, scattered and dynamic. In addition, network analysis avoids many of the normative connotations that creep into the categories and taxonomies developed in conventional social analyses because the type of relationship does not have to be assessed. All of an individual's ties may be plotted in a network; or, as is more usual, a partial network can be developed. In addition to personal network analyses, organizational networks can be mapped to identify the ways in which organizations relate to one another.

The concept of social network was first explored systematically in anthropology by Barnes to describe the patterns of kinship in a Norwegian fishing village (1952); but it is a familiar perspective in the work of Radcliffe Brown; and in sociology, in Simmel's "web of affiliations." In social psychology, Moreno (1934) used network thinking to develop sociometric studies of patterns of association within small groups; and these have been replicated in classroom studies for the past forty years. Communication

researchers, borrowing from engineering models, have conceptualized network structures in organizational behavior studies. Political scientists, concerned with power and influence, have focused upon contact points and elite arrangements within which exchanges occur. Within this interdisciplinary field, scholars have been successful in developing conceptual orientations to understand relationships between systems by examining boundary spanning contacts. In addition, recent computer analyses have made it possible to add to earlier one-dimensional maps and deal with asymetric ties.

As Laumann notes, however, many of the network ideas are not new.

> Close examination reveals that network analysis is, at least in part, some rather old ideas that have been refurbished and made more attractive by being combined with sophisticated mathematical and quantitative tools (i.e., sophisticated for sociology and anthropology). 1979:391

The hope is that the new rigor developed in measurement can be complimented by conceptual development since "the explanatory task" of theory building has hardly begun (Anderson, 1979: 454). Without more theoretical sophistication, the application of social network analysis in education will be restricted.

Network Research in Education

In 1974, Litwak and Meyer used network conceptualizations to examine the linkages between schools, families and neighborhoods. They attempted to specify how a balance could be created among the different spheres of activity. For example, they suggested the use of "detached workers," "indigenous opinion leaders," and "common messenters" to reduce the social distance between the school and community. A major contribution of Litwak and Meyer was to focus attention upon school boundaries of the "interface" between education and other local components of a socialization community.

Sarason and Lorentz (1979) provided a detailed description of a social network among educators in one community and a rationale for creating and

developing what they called "resource exchange networks." They define a resource exchange network as a:

> . . . voluntary, loose association of heterogeneous individuals willing to consider ways whereby each is willing to give and to get needed resources from others, to seek to increase the number and diversity of participants, to place no restrictions on the substance or foci of exchanges, and to resist putting considerations of exchange and planning under the pressure of funding and the calendar. (178)

In their view, resource exchange networks could utilize limited resources in education to promote change and enhance quality.[2] Their work was particularly interesting to educational policy makers. If resource exchange networks were encouraged and supported, could they become mechanisms to stimulate educational innovation? The answer to this question is one of the obejctives of the Pontiac study.

Interest in citizen participation in educational decision making led Gittell to examine community groups in three different cities (1979). The original focus was exclusively upon educational decision making, but the researchers found that community organizations generally had a broader perspective. The study showed that most community organizations are isolated from each other: what contacts exist do so because of personal relationships. In particular, there is little interracial and interclass contact and few ties with business or elected officials. The Pontiac studies support most of Gittell's findings, although in Pontiac, elected officials do have more grass roots connections. Gittell concluded that organizations composed of poor parents would be unable to overcome the external pressures that prevent them from sustained advocacy positions. As a result, most of the groups interested in reform became more service oriented. These findings also have important policy implications: the strategy of developing local citizen

groups to effect educational reform appears to have limited effectiveness.

Ecological Direction

In sum, the three examples mentioned have made a major contribution to the literature on community relations, increasing our awareness of the interrelationships between schools and other community organizations and school personnel and others outside of education. We are building upon this research in the Pontiac study. We view the school as operating within an interorganizational field, competing for resources and protecting its domain of activity.[3] We have been trying to understand the many boundary spanning activities of schools and to chart the exchange of resources within the community network. By thinking in terms of interorganiztional networks, we are also following the leadership for a new ecological emphasis in education (Bronfenbrenner, 1978; Cremin, 1976). Bronfenbrenner advocates a reorientation in research from the laboratory to relationships between the learner in the principal environments of life (e.g., home, school, work, neighborhood, community) and the interconnections between these environments. He wants to examine the educational environment on many levels. Cremin also argues that educators must view educational configurations as relationships among many different societal institutions. Although intuitively almost all educators are aware of this ecological reality, educational policy and research have generally only given it lip service. For example, the school environment is usually presented as a stage or backdrop upon which school actors perform, rather than as a dynamic and intrusive condition of exchange. Moreover, most studies of education focus so exclusively upon the schools that the dynamics of the interorganizational field are distorted. From an ecological perspective, the interaction between schools and the environment

is the central concern of research. Social network analysis provides a useful entree into this important paradigm shift.

Popular Views of "Networking"

The popular use of the word "networking" has grown among educators, especially those interested in promoting innovation and change. In material prepared for The Teachers Corps, Dosher (1978) describes networking as follows:

> The process of bringing together various elements in order to develop systems and sub-systems for a common purpose. Elements may be persons, groups, organizations, agencies, communities, systems.

In her view, networks are "a new mediating mechanism" which can bring "healing intervention between persons, groups, organizations, communities and oppressive systems." This idealistic view of the potential for applying network organizational strategies may be thought of as part of the overall interest in self-help groups that has flourished over the past decade. Like networks, the self-help group is generally loosely structured, democratically governed, and informal.

The National Institute of Education became interested in establishing networks of change and sponsored a series of working papers to examine this idea in 1977. Based upon some of the issues raised in these papers, a request for research proposals was issued. An examination of that document indicates the high hopes that networking stimulated. For example, networks might:

> Facilitate communication across bureaucratic and organizational lines, helping to reduce the isolation and alientation which people in bureaucracies often experience by providing a sense of community with sympathetic observers, advocates, and colleagues.

> Provide a means for typically powerless groups (e.g., minorities and the poor) to pursue their goals outside the established authority and decision making systems.

Provide access to resources otherwise difficult to obtain, especially by allowing low-energy, low-cost access to information.

Encourage interaction and collaboration across boundaries which typically separate such roles as knowledge/producer, knowledge/consumer and professional/lay person.

Creat countervailing sources of authority, influence and support both within and across organizations.

Facilitate the implementation of policy in one case while contributing to nonimplementation in another.

Involve connections among people with compatible values, interests, and outlooks. In a value-laden field such as education, this type of natural sorting mechanism is especially important.

(Request for Proposals, The National Institute of Education, 1977:2)

Why did networking become popular among educators so quickly? Partly, because it is a comfortable term--we are familiar with media "networks" and associate the word with communication--; partly, because it seems to be an alternative to the more formal demands of reform groups. In a network, one can participate in change without many of the demands for dues, holding office, attending regular meetings, or sustained commitment. Moreover, networks encompass an empirical reality that most people recognize: we see how "old boy" and now "new girl" networks operate in given situations to the advantage of members. Most people have also had the personal experience of participating in informal conversational networks such as the grapevine, or functional working relationships in which one learns whom to see "if you really want to get the job done." I suggest that another reason for the popularity of networking is that it can be used as a verb. It provides an active strategy or technique for dealing with events. For those social activists in education frustrated with more traditional efforts to change schools, networking appears to be an attractive way of influencing policies.

However, the difficulty in viewing networking as a strategy for change is that it is also a very effective strategy to resist change. One of the major ways those in power maintain control over events and organizations is by creating and maintaining social networks to reinforce their advantages. Most "networkers" lack the resources to sustain the network over a long period of time without adopting formal organizational arrangements. Once this happens, as Gittell illustrated in the study of poor community groups and Steinberg (1980) documents in a comparison of middle class and poor parent networks, energy and resources have to be devoted to maintaining the organization. The original strength of the network--its spontaneity, informality, and loose structure--are supplanted by explicit rules and more rigid arrangements. For these reasons, I do not think networking will remain a popular change strategy; but it will be incorporated into more comprehensive approaches.

The Current Status of Social Network Research

The "explosion of activity" in such areas as "cognition, attitude, formation, social and economic mobility, diffusion of innovations, communications, corporate and community organization, interpersonal behavior, political behavior and non-human social behavior" (Holland and Leinhardt, 1979:1), has been attributed to the importance of structure in all scientific work. The study of relationships and connections between phenomena, the ecological perspective, and the synthesis developed in systems analyses have brought together many divergent strands of scholarship. Barnes finds only a "family resemblance" among these different research areas and believes that they have converged upon network analysis for the time being, but will diverge again in the future (1979:421). Our Pontiac experience has suggested three possible reasons for supporting Barnes' assessment.

One of the most serious difficulties we faced in the field concerned verifying our data. Most of the network research has been undertaken in positive environments. In Pontiac, however, we are working in a highly turbulent environment. The community is experiencing massive economic dislocation due to the automobile industry; and throughout the decade, Pontiac experienced the highest level of structural unemployment of any city in the nation. The schools have experienced grave financial problems, and millage votes have been defeated seven times within the past two years. Problems of racism, urban decline, poor housing, and poverty--one out of four persons is receiving some type of assistance--contribute to the turbulence. One direct effect of the uncertainty, conflict and confusion that characterizes a turbulent environment is to raise the level of distrust among participants in the system. As a result, the kinds of reflective questions that are posed by network researchers are often greeted with suspicion and apathy. For example, when a community leader is asked to identify persons perceived to be influential in public activities, we are asking for information that has the clear potential to be controversial. At the very least, such a question requires the respondent to rank-order persons who may be significant to his or her own position, along some evaluative scale. At best, we are asking far more than perfunctory cooperation and participation in the research process. Sometimes the individual is at risk by answering. Under such conditions, we have questons about the validity of some of the data. We have tried to supplement newspapers and documents, and multiple surveys; but this is not easy when we are studying a large population. (Anthropologists working with small units, or educators in classrooms, are better able to check upon subject responses.) Since

computer technology and mathematical modeling are most useful in handling large data sets, the usefulness of both of these in resolving the problems of data collection is limited. Eight years ago, Noble concluded that the most fundamental difficulties in social network analysis "lie in the gathering of field data" (1973:11). I believe that this assessment still stands.

A second concern with the developing network paradigm is that the attention given to structure may obscure our serious interest in process. It is clear that these two interests are not distinct, although it appears that researchers anxious to show quantitative relationships between parts of the structure frequently overlook the more dynamic aspects of structuring. Instead of schools, for example, we should be concerned with "schooling"; and instead of assuming that social relationships are firm facts, we should consider the social construction of reality in on-going activities. An interesting discussion of school structure that is relevant to these observations about networking is Hugh Mehan's call for "constitutive ethnography." By this, Mehan argues that:

> . . . the central tenet of constitutive studies of the school is that "objective social facts," such as students' intelligence, scholastic achievement, or career patterns, and "routine patterns of behavior," such as classroom organizations, are accomplished in the interaction between teachers and students, testers and students, principals and teachers. Rather than merely describe recurrent patterns of behavior or seek correlations among variables, constitutive analysts study the structuring activities that construct the social facts of education. (1978:36)

In the Pontiac research, we have adopted the concept of "recipe" to refer to the flow of taken-for-granted assumptions and proscriptions that flow along networks. By trying to locate and follow recipes within networks, we have become more alert to the processes by which networks are sustained

and changed. In so doing, however, the conventional survey methodology used in data collection and analysis in most network studies has been of little value. Instead, we have adopted more traditional anthropological techniques of observation and historical tasks of content analysis and interpretation. We have found linguistic analyses to be particularly useful in interpreting the data. There are additional problems of compatability between data generated from different techniques, as well as difficulties in separating the levels of analyses. In spite of their importance, we have found very limited discussion of these issues in the network literature until quite recently.

A third concern--and probably the most serious charge against network analysis--concerns the explanatory usefulness of the research. To date, the potential of network analysis of this important area has not been realized. Two theoretical approaches--balance theory and exchange theory--are usually understood as foundations for network propositions. Efforts to make the theoretical bias of network research more explicit have had limited success, however, Too often, researchers infer cause from the existence of contacts within a structural field.

Our work in Pontiac with recipes is an effort to understand how the individual interprets and perceives social reality, and how such understandings are maintained through organizations. For example, we have encountered different recipes about the ways in which schools serve the community among different sets of actors working in a variety of organizational contexts. Our task has been to locate some of the insights gained from the examination of recipes within more comprehensive theoretical frameworks to explain what we can describe.

The underdevelopment of network theory poses a serious problem for educational researchers and raises the question of how many clothes the emperor is wearing. In spite of methodological elegance, social network analysis may not be able to enrich our reservoir of explanation. Some critics have dismissed network research as a metaphor. (Wellman describes two types of network researchers as those who wish "to harden network analysis into a method or soften it into a metaphor" (1980).) On the other hand, a good deal of progress in scientific theory has emerged from the creative utilization of metaphors.

One implication of these statements is that network analysis must be used sparingly in developing educational policies. Without the careful elaboration of theoretical propositions, policies will be based upon implicit assumptions and descriptive accounts rather than comprehensive explanations of phenomena. On the other hand, the pragmatic use of network insights may help us appreciate educational contexts better. For example, a major problem of the Pontiac schools, and a nationwide concern in the eighties, is the decline of local publics who support education. The decline in the birth rate and the rise of politically powerful special interest groups without any personal ties to schools have reduced interest in education. The traditional school community of teachers, parents and staff is simply not large enough to maintain the kinds of educational arrangements currently in existence. From an ecological perspective, it would make sense to incorporate education at the local level within a more general social service rubric that includes youth groups, churches, recreational agencies, child health agencies, and family organizations. Such a reorganization of the socialization domain would involve political issues of major importance to educators.

Directions for the Future

Network analysis has caught the attention of researchers and the public-at-large because it promises to "make sense" out of the confusing social relationships that we encounter in our daily activities. To date, that sense has been based upon developing more precise and coherent descriptions of the reality experienced and hinting at a strategy for developing social arrangements that could facilitate change. In education, both of these network features are useful. By making us more aware of the relationships between education and other community organizations, or of the interorganizational field, network thinking can help us develop an sensitivity to the ecological dimensions of schooling. The major tasks confronting network researchers in the next few years are to develop more adequate data collection techniques that can be validated, to incorporate more dynamic analyses of network processes, and to link network studies to theoretical development in many disciplines. In education, the most promising use of network research has been, and continues to be, in the area of school and community relations. However, there is important work to be done in understanding internal school networks among teachers and students, as well as more penetrating descriptive analyses of the patterns of family networks. At a time when education appears to be reeling from the effects of budget restrictions, declining public esteem, and fewer students, "network thinking" is useful in reminding us that learning and teaching, as well as researching and describing, are--in the final essence--relational activities. Only be relating ourselves and our ideas to tohers can we begin to know.

NOTES

[1]An outline of network literature is beyond the scope of this paper. Examples of some of the newest thinking in social network research are: J. Galaskiewicz, Exchange Networks and Community Politics (Beverly Hills: Sage, 1979)--an analysis of three distinct type of exchange networks in a community; P. Holland and S. Leinhardt, Perspectives on Social Network Research (New York: Academic Press, 1979); S. Leinhardt, Social Networks: A Developing Paradigm (New York: Academic Press, 1979) and Social Networks: An International Journal (Lausanne: Elsevier).

[2]An eralier book by Sarason, Carroll, Maton, Cohen and Lorentz, Human Services and Resource Networks: Rationale, Possibilities and Public Policy (San Francisco: Jossey-Bass, 1977) describes resource networks in non-educational settings.

[3]The concept of an interorganizational domain is employed in community studies. For a description of the concept and how it operated in a comparison of reform efforts in several communities, see: The Structure of Urban Reform: Community Decision Organizations in Stability and Change by R. Warren, S. Rose and A. Bergunder (Lexington, Ma.: Lexington Books, 1974).

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